Express Mail Label No. ER833080621US

20010-07USA
PCT/KR03/001211

METHOD OF PREPARING CATALYST FOR POLYMERIZATION OF ALIPHATIC POLYCARBONATE AND METHOD OF POLYMERIZING ALIPHATIC POLYCARBONATE

BACKGROUND OF THE INVENTION

FIELD OF THE INVENTION

The present invention relates to a method of preparing a catalyst for polymerization of aliphatic polycarbonates and a method of polymerizing an aliphatic polycarbonate, and more particularly, to a method of preparing a catalyst for polymerization of aliphatic polycarbonates exhibiting high catalyst activity using an amphiphilic block copolymer.

BACKGROUND OF THE INVENTION

Carbon dioxide from industrial activities, among atmospheric pollutants, has been known as one reason for climatic change according to the UNFCCC, so various studies to reduce the amount of carbon dioxide produced have been undertaken all around the world. Therefore, in order to protect the environment and to use carbon dioxide, a method in which an epoxide reacts with carbon dioxide as a carbon source in the presence of a zinc-included catalyst to prepare an aliphatic polycarbonate has attracted attention.

The aliphatic polycarbonate is able to form a film or a particle, and has uses in many areas such as for ceramic binders, evaporative pattern casting, and adhesives. However, this method has a low yield because of low carbon dioxide reactivity. Accordingly, it is difficult to use industrially, so it is required to prepare a catalyst exhibiting high efficiency for increasing the yield of the aliphatic polycarbonate.

Inoue teaches a method of polycarbonate production from carbon dioxide and epoxide in U.S. Patent No. 3,585,168.

The Inoue catalyst system was prepared by the reaction of a diethylzinc catalyst with materials containing active hydrogen compounds, e.g., water, dicarboxylic acid, or dihydric phenols, and the typical catalyst productivities ranged from 2.0 to 10.0 grams of polymer per gram of catalyst used. The catalyst has shortcomings associated with use and storage, because of stability and sensitivity to moisture and to other catalyst poisons, and it has a low yield, so it has been required to study other catalyst systems.

Zinc dicarboxylic acid esters (Polymer J. 13(4), 407(1981)) reported by Soga have also been described as effective catalysts for copolymerization of carbon dioxide and propylene oxide,